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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,713	07/07/2000	GLENN NORMAN DICKINS	LAKE012	7553

21921 7590 07/18/2006

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EXAMINER
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LEE, PING

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/508,713

Applicant(s)

DICKINS ET AL.

Examiner

Ping Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 6,9-19 and 31-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8,20-30,36-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. In view of the telephone interview on 4/24/06, claims 1-5 and 43-51 would be examined in addition to claims 7, 8, 20-30 and 36-42 as indicated previously. The previous office action has been vacated. A new office action is provided below. Examiner would like to apologize for the delay.

***Election/Restrictions***

2. Claims 6, 9-19 and 31-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/10/05.

3. Applicant's election with traverse of species 1 in the reply filed on 11/10/05 is acknowledged. The traversal is on the ground(s) that the reasoning for the different species is improper. This is not found persuasive because Species 1 reads on the invention as illustrated in Figs. 7 and 9. The special technical feature of species I invention is the particular surround sound and a first mixing matrix interconnected to the audio inputs and a series of feedback inputs from a filter system. Applicant agreed that Fig. 7 shows the feedback. However, applicant failed to recognize that Fig. 9 also has a feedback from 127 to adders 113 and 114, which is a part of the first mixing matrix based on Fig. 7. Fig. 9, showing a 5-channel input, is a specific example of Fig. 7. Fig. 7 shows that there are first mixing matrix, filter stages and a second mixing matrix. However, none of these blocks is clearly labeled in Fig. 9. Fig. 8 is also a variation of Fig. 7. A feedback path is shown at the output of 104 back to the first mixing matrix.

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Since both Figs. 8 and 9 are the specific examples of Fig. 7, the same way of grouping the adders and subtractor as shown in Fig. 8 could be applied to Fig. 9. For Fig. 9, the first mixing matrix includes shufflers 118, and adders 113, 114 and 126. One of the outputs from the first mixing matrix will be applied to filter 127. The output from filter 127 will be fed back to the first mixing matrix. Therefore, it is proper to group Figs. 7 and 9 together. Although claims 50 and 51 do not claim any feedback path, their respectively claimed limitation that "the reverberation part of the acoustic response is weighted toward the front of the listener" and "the reverberation part of the acoustic response produced by the processing is weighted only toward the front of the listener", is performed by the invention as shown in Fig. 9, as supported by p. 10 of the specification. Therefore, it is proper to group claims 50 and 51 with all claims read on Figs. 7 and 9. Since species II-VI do not contain the same technical features as claimed claims 50 and 51, it is improper to group claim 50 or/and 51 to any of species II-VI.

The requirement is still deemed proper and is therefore made FINAL.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-5 , 40 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the description for “a filter system” fails to correctly describe the system as shown in Figs. 7 and 9. The claimed filter system requires “separate filters for filtering the direct response and the short time response of a room and an approximation to the reverberation response of the room”. While Fig. 9 shows filters 128, 129, 119 and 120 for providing the direct response and the short time response of a room at their outputs and the reverberation, there is no separate filter for providing the direct response, the short time response of the room or the reverberation separately. Claim 20 has a similar defect.

Regarding claim 40, the claimed “stereo output signals” are signals cannot be corresponded to the claimed “Dolby AC-3 inputs” specified in the independent claim 7. Furthermore, the claim fails to clearly and correctly state the connection between the external device, the filtering and the headphones as shown in Fig. 27. Claim 41 has the similar defects

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-5, 7, 8, 37, 40, 44, 47 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cashion et al (US005809149A) in view of Davis et al (U500644936881).

Regarding claims 7 and 51, Cashion et al (hereafter Cashion) disclose an audio processing method for generating stereo headphone outputs (col. 1, lines 7-9) so as to substantially preserve the spatial components present in the inputs so as to create the appearance of sound located around a listener (Fig. 1; col. 2, line 38 through col. 3, line 6), said apparatus comprising:

filtering the inputs to simulate the early part of the response from a suitably arranged virtual speaker to a corresponding listener's ear (by filters 88, 90, 92, 94, 98); applying a second filter (96 98); and adding together the outputs from the filtering step and the applying steps (142-148,170,176).

Regarding claim 8, Cashion shows that the inputs are summed (by 138 and 140) before applying to the second filter.

Regarding claims 1, 2, 4, 5 and 50, Cashion shows a series of audio input terminals to accept a series of audio inputs, a first mixing matrix means (110-132), a filter system (46, 48, 88, 90, 92, 94, 96, 98) outputting filtered intermediate output signals including filtered direct response signals (from 46, 48), filtered short time response signals (from 88, 90, 92, 94) and filtered reverberation signals (from 96, 98).

Regarding claim 3, Cashion shows the time varying gain because gains 58 are varied in time based on the video game.

Regarding claims 1-5, 7, 8 and 51, Cashion fails to explicitly show Dolby AC-3 inputs. However, Cashion suggests that the system could be used for modifying the audio signal for a video game played on a computer (col. 1, lines 19-21). Davis et al (hereafter Davis) teaches that the Dolby AC-3 format has been used for video game intended to be played on a computer (col. 1, lines 12-16). Cashion teaches a general sound processing system for simulating the direct, early reflection and reverberation response for multiple input sound sources (30 and 30') to be applied to a headphone. One skilled in the art would have expected that same concept of simulating the direct, early reflection and reverberation response could be used for any specific sound inputs

without generating any unexpected result. Thus, it would have been obvious to one of ordinary skill in the art to modify Cashion's system in view of Davis by modifying the system to accommodate the AC-3 inputs in order to allow the user to have a more realistic sound imaging while playing video game with Dolby AC-3 format.

Regarding claims 37 and 44, Cashion and Davis fail to explicitly show a modified form of a digit-to-analog converter, such converter is inherently provided to converting the digital outputs from the digital filters to analog signal for the headphones.

Regarding claims 40 and 47, Cashion shows that said apparatus is implemented utilizing a separately detachable external device (col.1, lines 19-20; home personal computer is a separately detachable external device) connected intermediate of a sound output signal generator (video game disk or disc) and said headphones said sound output signals being output in a digital form (video game disk or disc for PC is inherently in digital form) for processing by said external device.

Regarding claim 49, Cashion show the variable zoom control (the range control and azimuth control 32 and 34).

10. Claims 38, 39, 41, 45, 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cashion in view of Davis as applied to claims 7 and 8 above, and further in view of Lee (US 5,590,204).

Regarding claims 38, 39, 41, 45, 46 and 48, Cashion and Davis fail to explicitly show a dedicated or programmable DSP, an analog to digital converter and digital to analog converter. Cashion teaches a general sound processing circuit without specifying the nature of the input signals as in an analog or digital form. However,



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Cashion suggests that any kind of input signals could be used (col. 7, lines 58-62).

Therefore, one skilled in the art would have expected that Cashion's system could process analog inputs without generating any unexpected result. Of course, one has to make sure that the analog inputs be converted to digital signals if Cashion's system using digital filters. Cashion teaches FIR or IIR filters (col. 5, lines 48-64; col. 8, lines 45-46; and col. 9, lines 51-54) which are digital filters. Lee teaches, in Fig. 1, the layout of converting analog inputs to digital inputs using ADC (10), processing the digital signals using FIR filters (col. 5, lines 19-22) programmed using DSP (30, 70) and converting the processed digital signals to analog signals using DAC (80). Thus, it would have been obvious to one of ordinary skill in the art to further modify Cashion and Davis in view of Lee by utilizing the ADC, DSP and DAC in order to process analog input signals to be reproduced by the headphone.

11. Claims 36, 42, 43 and 49 rejected under 35 U.S.C. 103(a) as being unpatentable over Cashion in view of Davis as applied to claims 7 and 8 above, and further in view of Shimizume et al (US 6,269,061).

Regarding claims 36 and 43, Cashion and Davis teach a digital source medium for providing video game but fail to show a skip protection processor unit located inside a CD-ROM player unit. It was well known to those in the art that the video game could be stored on a CD-ROM, which allows the game to be played on different CD-ROM player. Shimizume et al (hereafter Shimizume) teaches a skip protection processor unit (22, 23; col. 8, lines 32-35) located inside a CD-ROM player unit (col. 22, lines 1-4) to ensure that the data from the CD-ROM would not be interrupted by a shock to the

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player. Thus, it would have been obvious to one of ordinary skill in the art to further modify Cashion in view of Davis by utilizing a Skip protection processor as taught in Shimizume in order to allow the user to obtain same quality of data even when there is shock to the player.

Regarding claim 42, Cashion show the variable zoom control (the range control and azimuth control 32 and 34).

***Allowable Subject Matter***

12. Claims 20-30 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

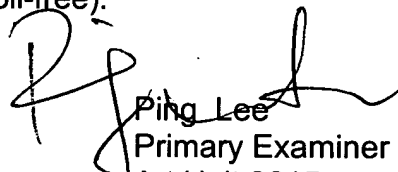
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522.

The examiner can normally be reached on Monday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ping Lee  
Primary Examiner  
Art Unit 2615

pwl